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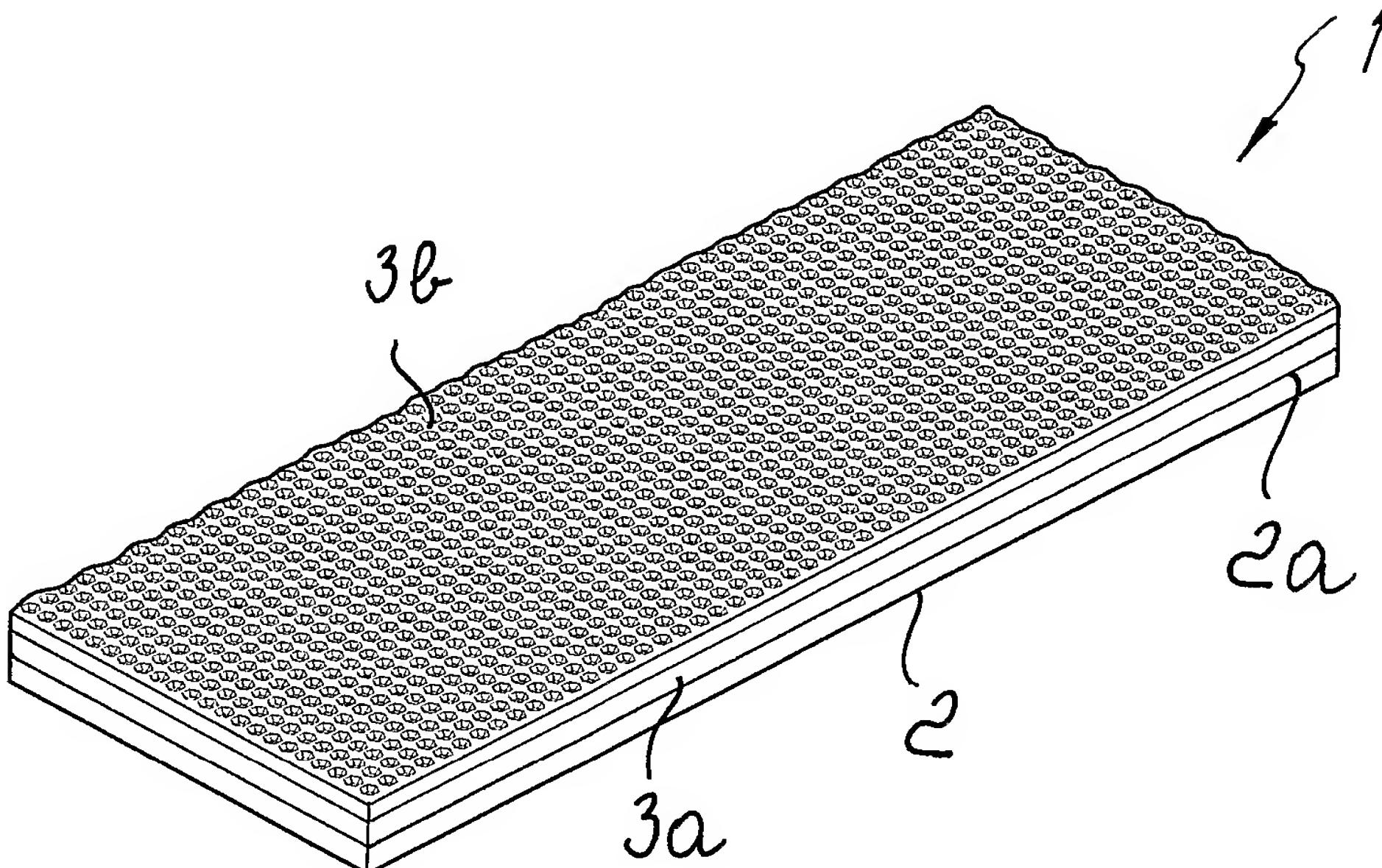
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(54) Title: METHOD FOR PRODUCING COATED PAPER WITH PEARLESCENT EFFECT



WO 2004/099500 A1

(57) Abstract: A method for producing coated paper with pearlescent effect, sequentially comprising the following operating steps:
-- a deposition, on at least one side (2a) of a paper medium (2), of at least one layer (3a) of coating; -- an additional deposition, over
the at least one layer (3a) of coating, of a coating (3b) with pearlescent effect by a rotogravure/flexographic device.

METHOD FOR PRODUCING COATED PAPER WITH PEARLESCENT EFFECT

Technical Field

The present invention relates to a method for producing coated paper
5 with pearlescent effect.

Background Art

Currently, coated papers are increasingly important in the graphic sector.

In particular, so-called ivory or embossed coated papers are rather
10 widespread and are produced by combining the traditional processes for producing coated papers with the methods for obtaining the so-called ivory or embossed effect.

However, currently it is not easy to obtain a coated paper with pearlescent effect by using conventional processes.

15 The pearlescent effect, according to current knowledge, can in fact be obtained either by depositing, by means of a stiff blade, the pearlescent pigments on the paper medium on which the coating has been spread beforehand, or by mixing the pearlescent pigments with the coating and then spreading the resulting mixture onto the paper medium.

20 However, it has been found that the products obtained with the methods described above are very poor.

The dimensions of the pearlescent pigments are in fact distinctly larger (by approximately ten times) than those of conventional coatings, and it is therefore practically impossible to obtain a uniform mixture.

25 Furthermore, in order to allow pearlescent pigments to express their characteristic effect, they must remain completely on the surface, whereas if they are mixed with the coating they also distribute proximate to the paper medium.

Finally, it should be noted that if the pearlescent pigments are
30 deposited by means of a stiff blade, since they are, as mentioned,

considerably larger than the pigments that constitute the coating, they form streaks and/or lines.

Disclosure of the Invention

The aim of the present invention is to provide a method for producing 5 coated paper with pearlescent effect that is capable of eliminating or in any case drastically reducing the drawbacks noted above of conventional methods.

Within this aim, an object of the invention is to provide a method for producing coated paper with pearlescent effect that allows to obtain a paper 10 with high printability.

Another object of the present invention is to provide a technological solution that allows to provide a range of coated papers with pearlescent (or slightly pearlescent) effect while maintaining a high brightness, so as to allow their use in the most disparate sectors, from graphics to packaging and 15 covering to advertising.

Another object of the invention is to provide a method for producing coated paper with pearlescent effect that allows to obtain coated papers with pearlescent effect on one or both sides of the paper medium.

This aim and these and other objects that will become better apparent 20 hereinafter are achieved by a method for producing coated paper with pearlescent effect, characterized in that it sequentially comprises the steps of:

- performing a first deposition, on at least one side of a paper medium, of at least one first layer of coating;
- 25 -- performing a second deposition, over the first layer of coating, of a coating with pearlescent effect by means of a rotogravure/flexographic device.

Advantageously the coating with pearlescent effect comprises at least nitrocellulose resins, mica-based pigments, and a solvent.

30 According to another aspect, the present invention provides a coated

paper with pearlescent effect, which is characterized in that it comprises a paper medium that has, at at least one side, at least one first layer of coating and, over the first layer of coating, at least one layer of coating having a pearlescent effect.

5 **Brief Description of the Drawings**

Further aspects and advantages of the invention will become better apparent from the present detailed description of some currently preferred examples of embodiments, given merely by way of non-limiting example with reference to the accompanying drawings, wherein:

10 Figure 1 is a perspective view of a coated paper with pearlescent effect according to the invention;

Figure 2 is a perspective view of a deposition cylinder;

Figure 3 is an enlarged-scale side elevation view of the outer surface of the deposition cylinder shown in Figure 2; and

15 Figure 4 is a sectional view, taken along the line IV-IV of Figure 3.

Ways of carrying out the Invention

In the examples of embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other examples 20 of embodiments.

Moreover, it is noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

As shown by the figures, the present invention relates to a method for 25 producing coated paper having a pearlescent effect, generally designated by the reference numeral 1.

In particular, the production process according to the invention provides that at least one deposition of at least one layer 3a of coating is performed at at least one side 2a of a paper medium 2, first of all, by way of 30 per se known devices or systems.

Also according to the invention, the method for producing coated paper with pearlescent effect provides for an additional deposition of a pearlescent coating 3b over the coating layer 3a.

In particular, the additional deposition of pearlescent coating 3b is 5 performed by using rotogravure (or flexographic) devices (or systems), constituted for example by a deposition roller 4, which has a plurality of deposition cells 5 at its outer side wall 4a.

In greater detail, a method for producing coated paper having a 10 pearlescent effect, merely by way of example, can provide for a first deposition of a layer of conventional coating approximately 6-12 microns thick on both sides (2a and 2b) of a paper medium 2 that has a thickness of approximately 100 microns.

Then, according to a preferred embodiment, an additional layer of 15 coating of approximately 1-8 microns per side is deposited on both sides.

It is evident that after these depositions (of "conventional" coating), the thickness of the medium will be approximately 116-140 microns.

According to the invention, a layer of pearlescent coating is then applied on one or both sides of the resulting medium by way of a system or 20 device of the rotogravure/flexographic type, constituted for example by a deposition roller 4.

By way of example, this deposition or these depositions of layers of 25 pearlescent coating is(are) performed by placing the medium, or rather both faces of the medium, in contact with the outer side wall 4a of the deposition roller 4.

According to a preferred embodiment, the coating layer(s) containing the pearlescent pigments deposited by the deposition roller 4 has(have) a thickness of approximately 2-6 microns, which accordingly brings the total thickness of the resulting paper to 120-152 microns.

Naturally, nothing forbids the use of initial paper media of different 30 thickness, or the deposition of thicknesses of coating (or pearlescent

coating) having thicknesses that differ from those indicated in the method described above.

Advantageously, the pearlescent coating comprises at least nitrocellulose resins, mica-based pigments, and a suitable solvent.

5 According to another aspect, the present invention provides a coated paper with pearlescent effect 1, which is constituted by a paper medium 2 that has, at at least one side 2a, at least one coating layer 3a and, above the coating layer 3a, at least one coating layer 3b with pearlescent effect.

All the characteristics of the invention described above as being
10 advantageous, convenient or the like may also be omitted or replaced with
equivalents.

All the details may further be replaced with other technically
equivalent elements.

The materials and the dimensions may be various according to
15 requirements.

The disclosures in Italian Patent Application No. VR2003A000054
from which this application claims priority are incorporated herein by
reference.

CLAIMS

1. A method for producing coated paper with pearlescent effect, characterized in that it sequentially comprises the steps of:
 - performing a first deposition, on at least one side of a paper medium, of at least one layer of coating;
 - performing a second deposition, over said at least one layer of coating, of a coating with pearlescent effect by means of a rotogravure/flexographic device.
2. The method for producing coated paper with pearlescent effect according to claim 1, characterized in that said coating with pearlescent effect comprises at least nitrocellulose resins, mica-based pigments, and a solvent.
3. The method for producing coated paper with pearlescent effect, according to claim 1, characterized in that said rotogravure/flexographic device comprises at least one deposition roller.
4. The method for producing coated paper with pearlescent effect according to claim 3, characterized in that said at least one deposition roller has a plurality of deposition cells at its outer side wall.
5. The method according to claim 1, characterized in that said paper medium has a thickness comprised between 70 and 400 microns.
6. The method for producing coated paper with pearlescent effect according to claim 1, characterized in that said first deposition step comprises deposition of a first and second layers of coating, said first layer of coating having a thickness comprised between 6 and 12 microns, and said second layer of coating having a thickness comprised between 1 and 8 microns.
7. The method for producing coated paper with pearlescent effect according to claim 6, characterized in that said deposition of said first and second layers of coating is performed at both sides of said paper medium.
8. The method for producing coated paper with pearlescent effect

according to claim 1, characterized in that said additional deposition of a coating with pearlescent effect is performed over both of said first depositions.

9. The method for producing coated paper with pearlescent effect
5 according to claim 1, characterized in that said additional deposition of a coating with pearlescent effect has a thickness comprised between 2 and 6 microns per side.

10. A coated paper with pearlescent effect, characterized in that it comprises a paper medium that has, at at least one side, at least one layer of
10 coating and, above said at least one layer of coating, at least one layer of coating with pearlescent effect.

1/2

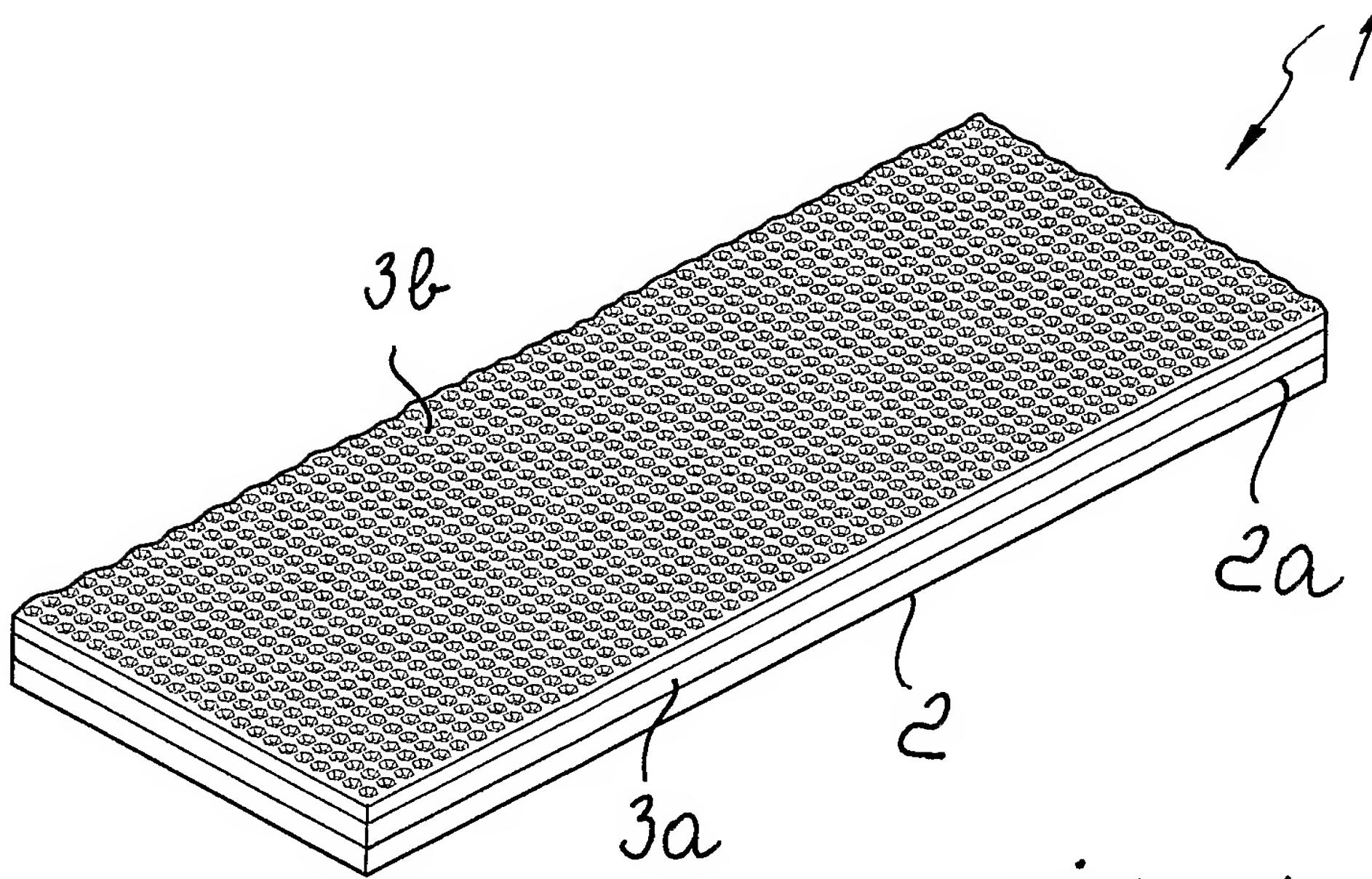


Fig. 1

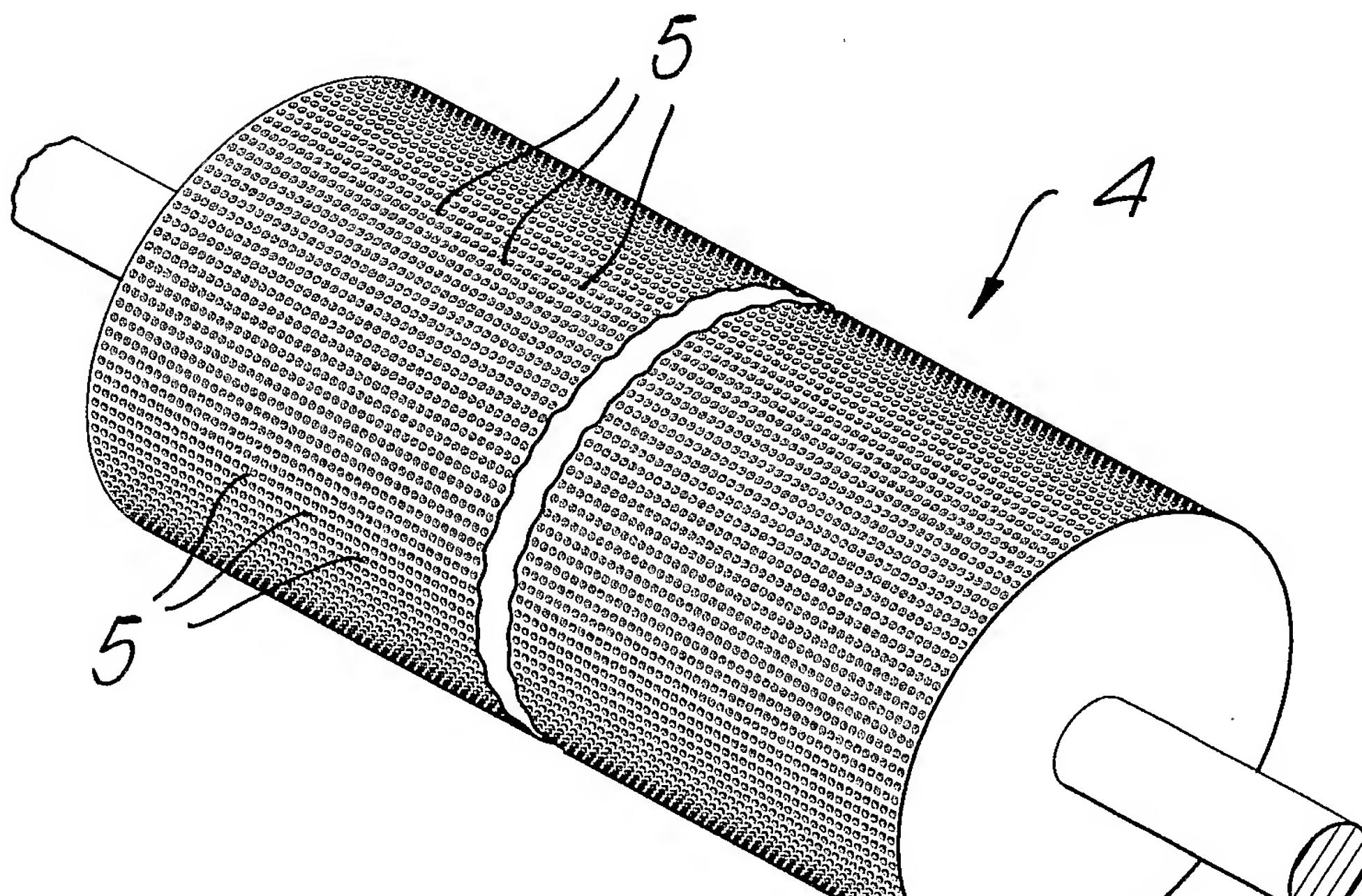


Fig. 2

2/2

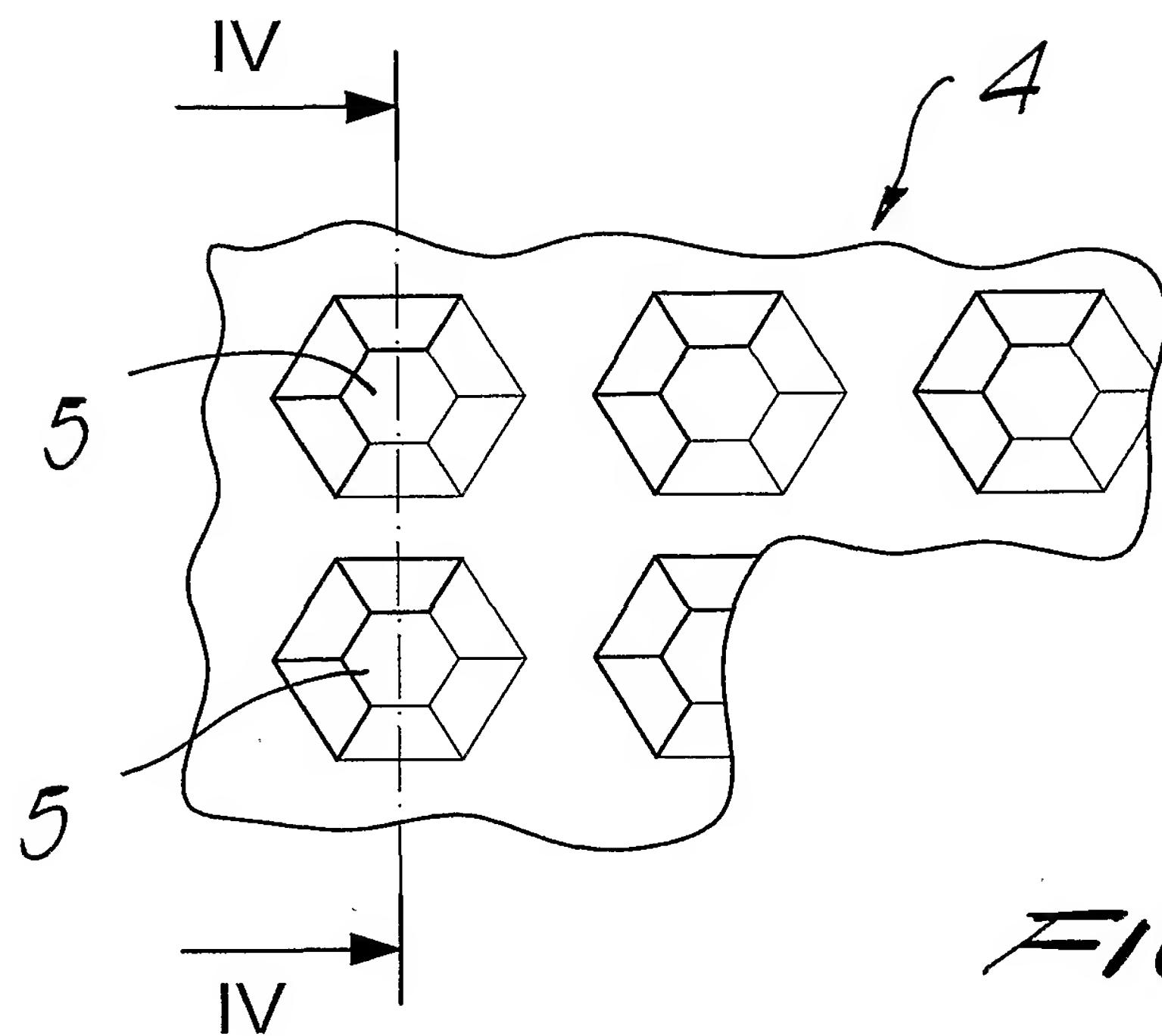


Fig. 3

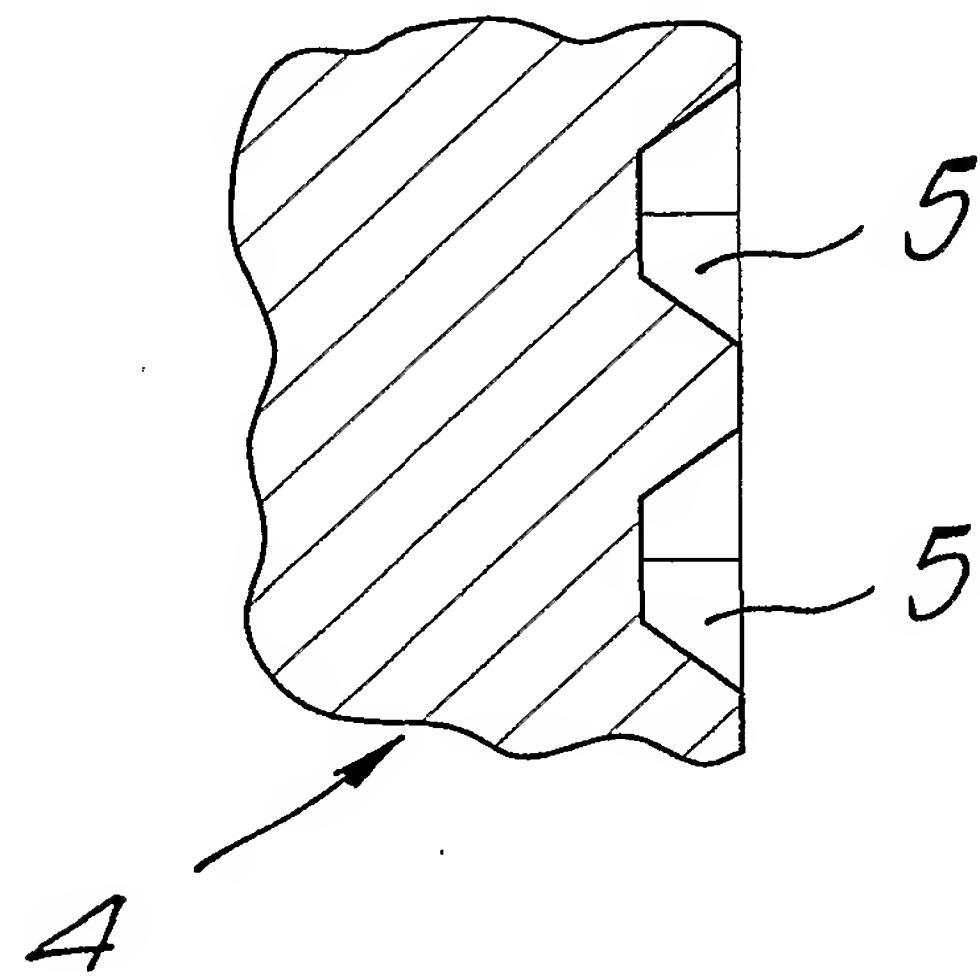


Fig. 4

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 D21H23/56 D21H19/66 D21H19/82 D21H27/26

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 409 280 A (WILEY JOHN W ET AL) 11 October 1983 (1983-10-11) figure 2 column 4, line 33 – line 49 column 5, line 17 – line 29 -----	1,10
X	WO 95/06568 A (NEVAMAR CORP) 9 March 1995 (1995-03-09) abstract figures 1,2 -----	10
X	US 5 571 557 A (DE BASTIANI NORMAN P ET AL) 5 November 1996 (1996-11-05) claims 1,2 column 1, line 43 – line 55 -----	1,2,10

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

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US 4409280	A	11-10-1983	AU	552329 B2	29-05-1986
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ABSTRACT:

CHG DATE=20041130 STATUS=O>A method for producing coated paper with pearlescent effect, sequentially comprising the following operating steps: -- a deposition, on at least one side (2a) of a paper medium (2), of at least one layer (3a) of coating; -- an additional deposition, over the at least one layer (3a) of coating, of a coating (3b) with pearlescent effect by a rotogravure/flexographic device.